Nigerian Journal of Medical Imaging and Radiation Therapy

KNOWLEDGE AND PERCEPTION OF OBSTETRIC SONOGRAPHY BYWOMEN UNDERGOING SCAN IN TWO CENTERS IN GOMBE METROPOLIS, NIGERIA

[1]Ibrahim Abubakar Jalo, [*1]Anas Ya'u, [2]Anthony C. Ugwu, [1]Mohammed Sidi, [1]Abubakar Aminu Abubakar, & [1]Umar Mansur

[1]Department of Medical Radiography, Faculty of Allied Health Sciences, Bayero University, Kano,
[2]Department of Radiography and Radiological Sciences, Faculty of Health Sciences and Technology, Nnamdi Azikiwe University, Awka, Nigeria.

***Corresponding author:** *Anas Ya'u*
ayau.radg@buk.edu.ng
***Tel:** +2348066338046*

ARTICLE INFO

Keywords:
Knowledge,
Perception,
Pregnancy, and
Obstetric scan

ABSTRACT

Background: Obstetric Ultrasound scan plays an important role in confirming a pregnancy, site of pregnancy and its prognosis. Views and perception of pregnant women toward prenatal sonography affects its utilization.

Objectives: The study aimed at investigating the knowledge and perception of pregnant women towards obstetric scan in two hospitals in Gombe, Nigeria.

Materials and Methods: The prospective and cross-sectional study was conducted in the Radiology Departments of Federal Teaching Hospital Gombe, and General Hospital Gombe. A simple random sampling method was employed for the study. Ethical clearance to conduct the study was obtained from Gombe State Ministry of Health. Informed consent was obtained from all the respondents before commencing the data collection. A structured questionnaire was used as an instrument for data collection. The questionnaire was validated by experienced colleagues and using pilot study the reliability of the measuring tool was tested and the Chronbach reliability coefficient was found to be 0.76. Two hundred and forty questionnaires were administered. The obtained data were analyzed using SPSS version 21.0.

Results: Out of the 240 (100%) administered questionnaires, 236 (98.3%) were returned, and 230 (95.8%) were properly filled. Majority of the respondents were exposed to obstetric scan previously 89.1%, therefore 202(87.8%) knew obstetric scan can be used in the assessments of fetal growth. More than 85% agrees obstetric scan is safe and 87.4% see it as necessary in every pregnancy. However, 90% consider sex determination as an indication of obstetric scan.

Conclusion: Pregnant women demonstrate good knowledge and perception towards obstetric scan. However, there is an urgent need to create more awareness about indications and possible bio-effects of obstetric scan.

INTRODUCTION

Pregnancy occurs when a male sperm penetrates an egg and fertilizes it which usually happens in the woman's fallopian tube after ovulation and ending when a baby is born, it is divided into three stages; first, second and third trimesters[1]. Pregnancy symptoms differ from woman to woman and pregnancy to pregnancy; however, one of the most significant symptoms is a delayed or missed period[2]. Although pregnancy may be classified as a normal physiological condition, it is associated with considerable risk to both mother and the offspring[3]. Obstetric ultrasound scan before 24 weeks of gestation is recommended for pregnant women to estimate gestational age, improve detection of fetal anomalies and multiple pregnancies, reduce induction of labour for post-term pregnancy, and improve a woman's pregnancy experience[4].

Obstetric ultrasound is a procedure that uses high-frequency sound waves to scan a woman's abdomen and pelvic cavity, using small transducer (probe) and coupling gel to obtain a sonogram of the baby, placenta as well as the mother's uterus, blood vessels and ovaries[1]. It is recognized as a safe, effective, and highly flexible imaging modality capable of providing clinically relevant information about most parts of the body in a rapid and cost-effective manner[5]. It plays a role of utmost importance in confirming the pregnancy, site of pregnancy, viability and also in predicting whether a pregnancy has a good chance of continuing or it is destined to fail or has already failed[3]. Doppler ultrasound examination is not recommended in obstetric scan unless otherwise indicated to improve maternal and prenatal outcomes[4].

Knowledge is defined as the justified true belief according to the most widely accepted definition[6]. Perception deals with the human senses that generate signals from the environment through sight, hearing, touch, smell and taste[7]. The views and perception of pregnant women toward prenatal sonography affects its utilization[8]. Hence, when pregnant women lack factual information on the strengths and limitations of obstetric ultrasound, they are likely to adopt attitudes and behaviors that could adversely affect their exploitation of this technology and such misperception may be passed to other potential users which may undermine the proactive use of this technology[9]. In order to develop positive health messages regarding the use of obstetric ultrasound, there is need to first identify knowledge gaps and perception among users.

With the wide availability of ultrasound, the expectation of the general public towards ultrasound has dramatically increased but the actual knowledge and perception regarding its use are lacking in them because for many expectant parents, ultrasound is only a tool for sex determination[10-12]. Inadequate or lack of good awareness about obstetric scan has caused anxiety in expectations and created negative experiences in many pregnant mothers[13]. There is paucity of data about knowledge and perception of pregnant women coming for anti-natal scan in the study area. Findings of the study will serve as a reference baseline for further studies. It will also guide the concern authority in devising a way of creating more awareness obstetric scan, which will in turn lead to proper utilization of the modality. The aim of the stud was to investigate the knowledge and perception of pregnant women towards obstetric ultrasound in Gombe metropolis.

MATERIALS AND METHODS

The prospective and cross-sectional study was conducted in the Radiology Departments of Federal Teaching Hospital Gombe, and General Hospital Gombe, both in Gombe state metropolis from 1st June, 2019 to 30th October, 2019. A simple random sampling method was employed for the study. An ethical clearance to conduct the study was obtained from the State Committee on Health Research and Ethics, Gombe State Ministry of Health (MOH/ADM/621/VOL.1/178). An informed consent was obtained from all the respondents. A structured questionnaire was used as an instrument for data collection. The questionnaire was validated by experienced colleagues and using pilot study the reliability of the measuring tool was tested and the Chronbach reliability coefficient was found to be 0.76. The questionnaire consists of three sections; section A, demographic information of the respondents, section B, knowledge of the respondents about obstetric scan, while section C, explored the perception of the respondents towards obstetric scan. Two hundred and forty questionnaires were administered to the participants. The obtained data were analyzed using SPSS version 21.0.

RESULTS

Out of the 240 (100%) administered questionnaires, 236 (98.3%) were returned, and 230(95.8%) were properly filled.

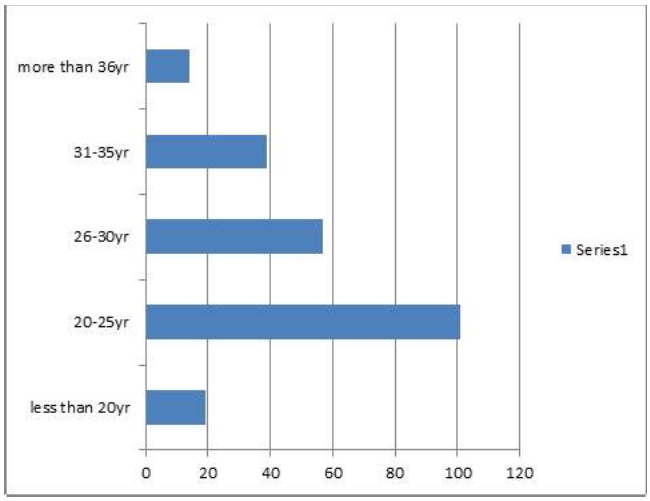

Figure 1: Respondents distribution according to age

The mean age of the respondent was found to be 27.07±6.26 with majority of the respondents within the age bracket of 20-25years (43.9%).

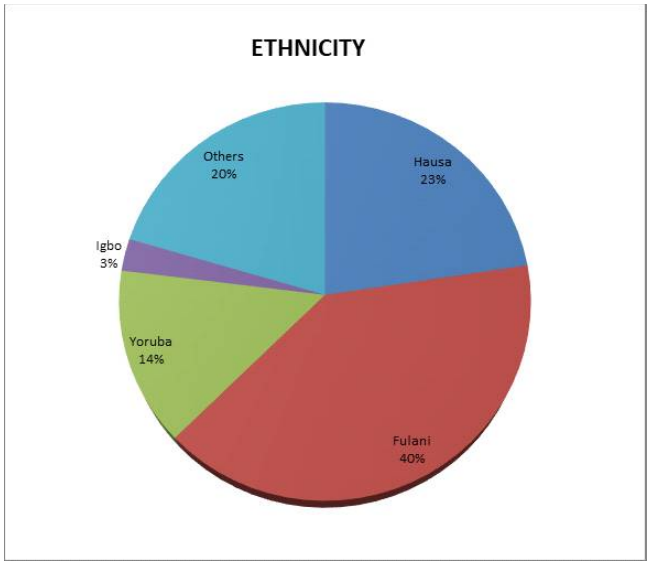

Figure 2: Distribution of respondents according to ethnicity

Forty percent of the respondents were Fulani by tribe followed by Hausa (23%) and the least among the respondents was found to be Igbo as shown in figure 2.

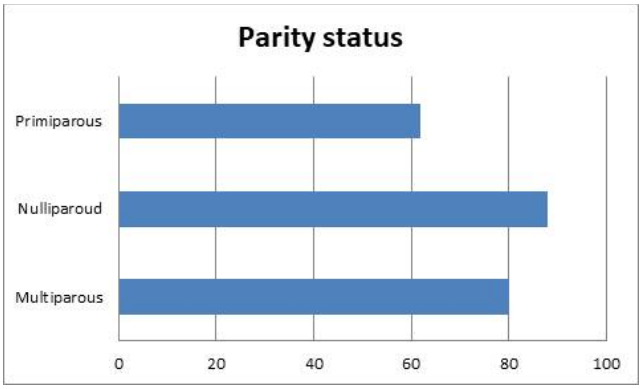

Figure 3: Parity status of the respondents

Majority of the respondent had given birth before 61(26.5%) were multiparous, 80(34.8%) were nulliparous while 88(38.3%) of the participants were nulliparous.

Majority of our respondents have achieved some level in formal education ranging from primary leaving certificate 51(22.2%), secondary school certificate 79(34.3%), and tertiary institution certificate 82(35.7%). With regard to occupation 126(54.8%) were house wife, while civil servants self employed among the respondents were 52(22.6%) each. 205(89.1%) were married, 25(10.9%) divorced and 2(0.8%) single mothers as shown in table 1.

Table 1: Socio demographic characteristics of the respondents

Variable	Response (No)	Percentage (%)
Religion		
	Islam (167)	72.6
	Christianity (59)	25.7
	Others (4)	1.7
Formal education status		
	Primary (51)	22.2
	Secondary (79)	34.3
	Tertiary (82)	35.7
	Others (18)	7.8
Occupation		
	House wife (126)	54.8
	Self employed (52)	22.6
	Civil servant (52)	22.6
Marital status		
	Married (205)	89.1
	Divorced (25)	10.9
	Single (2)	.8

have done obstetric exams previously 89.1%, and 202(87.8%) knew obstetric scan can be used in the assessments of fetal growth, 88.3% showed good knowledge about determination of fetal number and 86.5% fetal position likewise congenital abnormalities 82.2%. However, 47% don't have any idea about recommended number of routine scan during pregnancy.

Table 2: Respondents knowledge about obstetric scan

S/no	Questions	Response (%)	
1	Have you ever done obstetric scan?	Yes 205(89.1)	No 25(10.9)
2	It is used in the assessment of fetal growth	True 202(87.8)	False 28(12.2)
3	It is used to determine the number of fetus	True 203(88.3)	False 27(11.7)
4	It is used to determine fetal position	True 199(86.5)	False 31(13.5)
5	It is used in detecting congenital abnormalities	True 189(82.2)	False 41(17.8)
6	How many routine obstetric scan is recommended in every pregnancy?	One 58(25.2) Two 64(27.8) Don't know 108(47)	

More than 85% agrees obstetric scan is safe and 87.4% sees it as necessary in every pregnancy. 26.1% perceived obstetric scan to be painful and 90% consider sex determination as an indication of obstetric scan, meanwhile 87.4% consider EDD determination as an indication for the scan.

Table 3: Perception of respondents towards obstetric scan

S/No	Questions	Response (%)	
1	Did you consider obstetric scan to be safe?	Yes 196(85.2)	No 34(14.8)
2	Do you think it is necessary in every pregnancy?	Yes 201(87.4)	No 29(12.6)
3	Did you consider it to be painful?	Yes 60(26.1)	No 170(73.9)
4	Did you consider sex determination as an indication for obstetric scan?	Yes 207(90)	No 23(10)
5	It is done to determine the date of delivery	True 201(87.4)	False 29(12.6)

DISCUSSION

In this study majority of the participant were between 20-25years of age (80%). This is similar to the findings of Singh et al[5] with 51.3% of their respondents between the age of 20-25 years. The current study found out that 82% of the respondents have undergone basic formal education ranging from primary (22.2%), secondary (34.5%) and tertiary level (35.7%). This is in agreement with the findings of Ugwu *et al*[14]. It is however contrary to the findings of Singh *et al*[5]. They reported 41.3% level of illiteracy among their participants. Majority of our participants are Fulani (40%) and followed by Hausa (23%) tribes, it is not surprising because they are the dominant ethnic group in the study area. Out of 230 respondents 203(88.3%) are married, 25(10.9%) were divorced, while 2(0.8%) were single, lower number of single but pregnant women may not be unconnected with the religious believe and tradition/norms of people in the study area which forbid extra-marital affairs in strong terms.

Findings of this study shows that majority of the respondents (89.1%) have had previous experience

of obstetric scan. This is in agreement with Ayesha & Syeda[3]. Eighty two percent (82%) of their respondents knew about obstetric scan via personal experience. 202(87.8%) of our respondents knew obstetric scan can be used in the assessment of fetal growth, number of fetuses (88.3) as well as position of the fetus (88.3). This is in accordance with many similar studies by Krishnamoorthy & Kasinathan[10] which reported that (88%) of their respondents knew that obstetric scan can be used to access fetal growth, number of fetuses 77% and position/presentation of the fetus 74%. Ayesha & Syeda[3] also reported 88% of their respondents say obstetric scan is used to determine fetal growth. The agreement between our study and two other studies[3,10] may be probably because majority of the participants in the studies have basic formal knowledge and previous experience about obstetric scan. However, our finding is contrary to that of Singh *et al*[5]. They reported 55.6% of their respondents to be unaware that obstetric scan can be used to determine fetal position; may be because 41.3% of their respondent were reported as illiterate. The current study shows 82.2% of the participants knew that obstetric scan can be used in detecting congenital anomaly. This agrees with the findings of Saleh *et al* [1] and Dasun *et al*[11]. They reported 94% and 70% of their respondents to have good knowledge regarding the use of ultrasound to check for possible fetal abnormality respectively. This probably is because all the studies were conducted in urban areas were antenatal care and obstetric scan is more accessible, which may contribute to their knowledge about obstetric scan when compared to rural area. Secondly most of the respondents have had obstetric scan in their previous pregnancy which adds to their experience. 47% of participants in our study don't know the recommended number of routine obstetric scan per pregnancy. This may underscore the implementation of ALARA principle as it may result to overuse of ultrasound technology, mainly because of it's over commercialization for monetary gains in both public and private health facilities Ugwu et al[14]. This was shown in a survey carried out in Vietnam were 400 women had an average of 6.6 scans during their pregnancy and one-fifth had 10 or more scans. The study concluded by suggesting the need for guidelines regarding the appropriate use of obstetric ultrasound in antenatal care Gammeltoft & Hanh[8]. It is important, therefore, to have community-based information dissemination on the limits as well as the benefits of obstetric ultrasound, so that pregnant women will be able to make informed decisions about its use.

Regarding perception of the respondents; 85.2% consider obstetric scan to be safe and believe it has no harmful effect to the mother or her baby. This finding is in line with the report of other studies[5,10,15]. That majority of the participants in their study consider ultrasound scan to be safe. More than three quarter of the respondent in the current study 201(87.4%) believe obstetric scan is necessary in every pregnancy which concurs with the findings of Ugwu *et al*[14]. Eighty four percent (84.6%) of the respondents perceived neccessity of prenatal sonography by pregnant women during their antenatal period. Ikeako *et al*[16] also reported 73.1% (152/208) of the participants believed that the ultrasound should be done for every pregnant woman like other booking investigations. More than one fourth of the respondents of the current study 26.1% perceived obstetric scan to be painful, this is probably because the procedure and possible expectation were not explain to the patients. Our study also found verse majority of the respondents 207(90%) consider sex determination as an indication for obstetric scan. This finding is in agreement of Singh et al[5]. They reported that 65% of their respondents thought sex determination is an indication for obstetric scan. Saleh *et al*[1] also revealed that 65.8% of their participant do undergoes obstetric scan because of gender determination. The implication of this is that many pregnant women will be undergoing for obstetric scan that will be of minimal or no medical benefit. However our finding disagrees with the report of Ikeako *et al*[16] with only 17.8% (37/208) of their respondents said their reason for ultrasound request is to know the sex of their baby. One of the possible explanation to this may be because 68.8% of their study participants had tertiary education when compared to our respondent were only 35.7% attained tertiary level of formal education. The current study found 87.4% of the respondents believe obstetric scan is carried out to determine the expected date of delivery. This is also the case in a study by Oche *et al*[9] with 95.4% of their respondents do undergo obstetric scan in order to know their expected date of delivery. However Ikeako et al[16]. Found only 1.92% of their respondents do undergoes scan for the purpose of knowing their expected date of delivery.

CONCLUSION

Pregnant women in Gombe metropolis demonstrate good knowledge and perception towards obstetric scan. However, there is need of creating more awareness about the recommended number of obstetric scan in each low risk pregnancy, safety and indications of ultrasound during antenatal period in order to avoid misuse of ultrasound technology.

REFERENCES

1. Saleh, A. A., Idris, G., Dare, A., Yahuza, M. A., Suwaid, M. A., Idris, S. K. Awareness and perception of pregnant women about obstetrics ultrasound at Aminu Kano Teaching Hospital. *Sahel Medical Journal;* 2017.20:38-42
2. Raynor, B. D. (2003). Routine ultrasound in pregnancy. Clin Obstet Gynecol; 46:882-9
3. Majeed, A. I, Gul, S. S. Ultrasound Scanning and Prenatal Diagnosis: Its Knowledge and Cognisance in Pregnant Women of Islamabad. *Ann. Pak. Inst. Med. Sci*; 2017. 3(1):108-110
4. World Health Organization (WHO) Geneva (2016), Recommendations on antenatal care for a positive pregnancy experience, Available from: http://www.who.int. [Accessed 8th August 2020]
5. Singh, V., Varshney, A. M., Kaur, S. Awareness of ultrasonography among antenatal mothers attending the tertiary care hospital in Bundelkhand region of UP. *International Journal of Community Medicine and Public Health;* 2019. 6(1):277-280
6. Lemos, N. (2007). An Introduction to the Theory of Knowledge. *Cambridge University Press*; New York
7. Sidi, M., Ya'u, A., Abdu, H. D. Perception of patients undergoing hysterosalphingography (HSG) in Kano metropolis, *Nigeria. Bayero Journal of Pure and Applied Sciences*; 2020. 12(2): 24–32
8. Gammeltoft, T., & Nguyên, H. T. The Commodification of Obstetric Ultrasound Scanning in Hanoi, Viet Nam. *Reproductive Health Matters*; 2007. 15(29):163–171
9. Oche, M. O., Umar, A. S., Raji, M. O., Kaoje, A. U., Godwin, G., Ango, J. T., *et al.* Knowledge of the Use and Indications for Obstetric Ultrasound Scan among Women Attending A Main Referral Hospital, Sokoto, Nigeria. *Research in Obstetrics and Gynecology*; 2013. 2(5): 55-62
10. Krishnamoorthy, N., & Kasinathan, A. Knowledge and attitude regarding obstetric ultrasound among pregnant women: a cross sectional study. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*; 2016. 5(7):2192-2195
11. Dasan T. A., Singh, S., Koratagere, R. S., Raja, B., Rangaswamy, N. B. Knowledge and Attitude of Antenatal Women towards Routine Ultrasound Screening in Pregnancy at a Tertiary Institution in Bengaluru. *International Journal of Anatomy, Radiology and Surgery*; 2016. 5(4): 11-14
12. Cumber, S. N., Nchanji, K. N. Diagnostic medical ultrasound awareness among women in Sub-Saharan Africa (SSA). *International Journal of Radiology & Radiation Therapy*; 2017. 4(6): 474–475
13. Ugwu, A. C., Udo, B.E., Eze, J.C., Erondu, O. F. Awareness of information, expectations and experiences among women for obstetric sonography in a South East Nigeria population. *Am J Sci Ind Res*; 2011. 2:478-81
14. Ugwu, A. C., Elugwu, H. C., Onyegbule, O. A. Expectant mothers' perception of prenatal sonography in a South-Eastern population in Nigeria. *Tropical Journal of Obstetrics and Gynaecology*; 2016. 33:190-5
15. Onwuzu, S. W. I., Nkubli F. B., Adejoh, T., Ummukulthum B. K., Dlama, J. Awareness of Pre-Natal Ultrasound Scan Among Antenatal Patients in A Northern Nigerian Population. *ARPN Journal of Science and Technology*; 2014. 4:476-479
16. Ikeako, L. C., Ezegwui, H. U., Onwudiwe, E., Enwereji, J. O. Attitude of Expectant Mothers on the Use of Ultrasound in Pregnancy in a Tertiary Institution in South East of Nigeria. *Annals of Medical and Health Sciences Research*; 2009. 4 (6):949-953